



DISEASE MANAGEMENT: Early Blight of Tomato



Alternaria solani

SIGNS & SYMPTOMS:

- Foliar symptoms generally occur on the oldest leaves and start as small, brownish to black lesions. These leaf spots enlarge up to ½ inch (1.3 cm) in diameter in a characteristically concentric fashion. The area around the spot may become yellow, as may entire severely affected leaves. Under favorable conditions, significant defoliation of lower leaves may occur, leading to sunscald of fruit.
- Green or red fruit may be infected by the fungus which invades at the point of attachment between the stem and fruit, and through growth cracks and wounds made by insects. Dark lesions enlarge in a concentric fashion and may affect large areas of the fruit. Mature lesions in fruit are typically covered by a black velvety mass of fungal spores.
- Stem lesions are dark, slightly sunken and enlarge concentrically. Basal girdling and death of seedlings may occur. This manifestation of the disease is called collar rot.

DISEASE CYCLE & EPIDEMIOLOGY:

- Infection by the fungus is most rapid under warm 82-86°F (28-30°C) wet conditions.
- *Alternaria solani* survives between crops in plant debris and on seed. It can also survive on volunteer tomato plants (warm climates) and on other cultivated and wild solanaceous plants (potato, eggplant, horse nettle and black nightshade).

FIELD SIGNATURE:

- Early blight symptoms (leaf spot and defoliation) are most pronounced in the lower canopy.
- Disease severity and prevalence are highest when plants are loaded with fruit.

PHOTOS:

Figure 1. Typical foliar symptoms of early blight. Photograph by: Bob McGovern.

Figure 2. Early blight symptoms in fruit. Photograph by: Bob McGovern.

Figure 3. Collar rot symptoms in a tomato transplant. Photograph by: Bob McGovern.

Prepared by: Dr. Bob McGovern

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CULTURAL CONTROLS:

- Use pathogen-free seed and transplants.
- Maintain plant vigor through adequate irrigation and fertilization to increase disease resistance.
- Use long rotations away from tomato and other solanaceous crops, avoid planting tomato near related crops that are more mature and eliminate weed hosts of the pathogen.
- Avoid plant injury which allows entry of the pathogen and spread of the fungus through adequate insect management.



Figure 4. Severe foliar damage due to early blight; untreated plants are on the right and those treated preventively with fungicides are on the left. Photograph by: Bob McGovern.

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CHEMICAL CONTROL:

- Contact fungicides such as chlorothalonil and mancozeb provide moderate levels of control when applied preventively.
- Newer chemistries including strobilurin fungicides (azoxystrobin, pyraclostrobin, etc.) have provided excellent control in university trials.

RESISTANCE MANAGEMENT:

- New fungicide chemistries including the strobilurins generally have a narrow mode of action and are prone to the development of resistance by fungi; rotate these with fungicides from different groups.

RESISTANT CULTIVARS:

- Adequate resistance to early blight has not been identified in tomato cultivars.

References:

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